

Project Title: Preparing New York Outreach Professionals for Soybean Rust

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Cooperators: Cornell Cooperative Extension Educators

Objective:

1. Improve Extension Educator awareness and ability to respond to risk of regional invasion by Asian Soybean Rust

Justification and Implementation

The pathogen causing *Soybean Rust* (SBR) was introduced to the United States in 2004. Although the pathogen, *Phakopsora pachyrhizi*, can only survive the winter in the gulf coast states, it can spread North in the summer, potentially threatening soybean production in New York and the northeast. Predicting risk of SBR occurrence and distribution has been greatly enhanced by the availability of timely monitoring information available through the USDA IPM PIPE effort. Since it's initial detection in the US, SBR has fortunately, not caused economic losses in the northeast. New York participated in the national Soybean Rust surveillance initiative (now called Soybean Rust IPM PIPE) from 2005 – 2009 to detect soybean rust and provide an early warning to farmers in time to apply protective fungicides if warranted. Fortunately, soybean rust has not to date progressed into New York State by the end of a soybean growing season. But it has come close – southwestern Ontario in fall 2007 and southeastern Maryland in fall 2008 (Figure 1). The soybean rust IPM PIPE effort was modified in 2010 to focus on southern states as Tier 1 early detection areas that could also serve to alert more northern states as to potential risk of a SBR epidemic. Fortunately, SBR was not widespread in 2010, remaining largely confined to the gulf coast region of the southern US subsequently posed minimal to no risk for a SBR epidemic for soybeans grown in the northeast (Figure 1).

To best prepare New York cooperative extension personnel for the potential arrival of soybean rust in our region it is important that our extension field staff be familiar with the monitoring, detection, identification and effective management of this disease. To most effectively manage soybean rust, a fungicide must be applied to a soybean field at approximately the same time infection occurs. However, the disease will have been present for several weeks by the time an untrained eye is likely to first observe it, and significant yield loss will have likely already occurred. In New York, very few professionals have been directly trained to identify or manage soybean. Further, because soybean rust is exotic to NY and very damaging to soybeans, training cannot be done in New York. No better education opportunity would exist than to actually see the disease in the field and speak directly with individuals developing control strategies for soybean rust. To this end, we petitioned the Northeast soybean board for funds to send a contingent of New York Cornell Cooperative Extension educators to the National Soybean Rust Short Course in Quincy, Florida, August 2010.

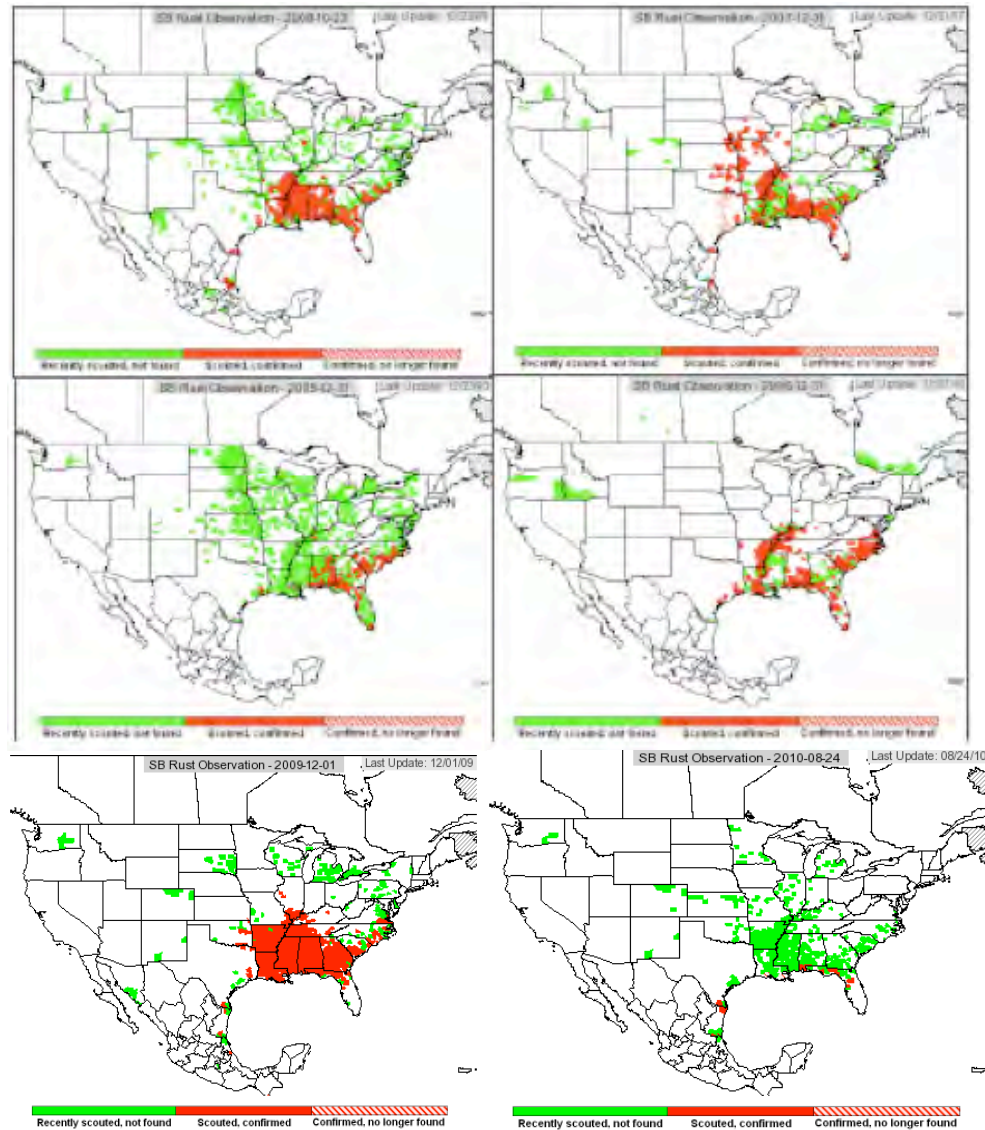


Figure 1. Seasonal progress (red-shaded counties had confirmed observations in soybean) of soybean rust in 2005, 2006, 2007, 2008, 2009 and 2010. Note the significant differences in the extent and distribution of SBR each year. (Source: Soybean rust maps <http://sbr.ipmPIPE.org/cgi-bin/sbr/public.cgi>)

Professional Development Opportunity:

The Northeast Soybean Promotion Board provided funding to allow several Cornell Cooperative Extension (CCE) educators to directly improve their knowledge regarding soybean rust identification and management by participation in the Southern Region Soybean Rust Short Course in Quincy, Florida August 26 – 27, 2010. This two-day workshop is offered through the Southern Plant Diagnostic Network in conjunction with the Department of Plant Pathology, University of Florida, Institute of Food and Agricultural Sciences at the Northern Florida Research and Education Center (NFREC) in Quincy, Florida.

The Soybean Rust Short Course was designed with agricultural specialists and consultants in mind. As such, the course concentrated on hands-on identification of the disease on the plant

and management of the soybean rust disease. An emphasis was also placed on scouting techniques and a demonstration of methods used to maximize chances of finding the signs of this pathogen in the field. An additional benefit of this workshop is that all the field-research on soybean rust in the United States is done at the NFREC, giving participants the opportunity to discuss management and research accomplishments with U.S. experts. More information about the Short Course can be found at: <http://www.sepdn.org/DesktopDefault.aspx?tabid=40>

The opportunity to attend the Short Course was extended to all Cornell Cooperative field crop extension personnel with Field Crop responsibilities. Originally 5 individuals expressed interest in the training. Ultimately, two individuals, Ms Alex Wright (Field Crops Specialist, CCE Rensselaer County) and Dr. Mike Stanyard (Field Crops Specialist & Team Leader, NWN CCE Dairy, Livestock, & Field Crops Team) both Cornell University Cooperative Extension (CCE) educators were able to participate in the workshop.

Short Course Short Course Evaluation:

Both participants had high praise for the workshop in terms of professionalism of organizers and presenters, speakers and technical information presented, host experiment station facilities. The opportunity to see soybean rust, kudzu, and SBR management research trials in the field and gain experience with the organism in the laboratory were added benefits.

Both participants completed pre- and post-course workshop surveys to evaluate impact of the training. A summary of their responses follow.

Southern Region Soybean Rust Short Course in Quincy, Florida August 26 – 27, 2010

Pre-Participation Survey

1) On a 1 to 5 scale, where 1 is “not confident” and 5 is “very confident”, Please rate your current level of confidence before participating in the SBR course in four areas:

1. Identification of Soybean Rust (1, 2)
2. Determination if a Fungicide is Needed (1, 1)
3. Fungicide Selection (2, 2)
4. Fungicide Timing (1, 1)

2) On a 1 to 5 scale, where 1 is “not aware” and 5 is “very knowledgeable”, Please rate your current level of knowledge before participating in the SBR course in the following two areas:

1. Options available for Soybean Rust Management (2, 2)
2. Major efforts underway to develop integrated management approaches (2, 1)

3) What do you hope to gain from participation in this workshop?

- I hope to learn positive ID characteristics, current best management practices, and future technology strategies for management coming down the pipeline.
- I would like to be a resource for local soybean farmers in the event that soybean rust works its way north. I would like to be confident in diagnosing soybean rust and recommending treatments, as well as putting on educational workshops to increase farmers’ awareness of this potential threat.

4) Other Comments?

- It is a possibility that SBR will get to NY in the future. As a regional field crop specialist in one of the highest density of soybean acreage in NY, I want to be prepared as much as possible to educate producers and local industry to be able to manage that situation if it ever occurs.
- I've told some soybean farmers that I will be attending this Short Course and they are eager to hear what I learn from it.

**Southern Region Soybean Rust Short Course in Quincy, Florida August 26 - 27, 2010
Post-Participation Survey**

1) On a 1 to 5 scale, where 1 is "not confident" and 5 is "very confident", Please rate your current level of confidence after participating in the SBR course in four areas:

1. Identification of Soybean Rust (5, 5)
2. Determination if a Fungicide is Needed (4, 3)
3. Fungicide Selection (4, 4)
4. Fungicide Timing (4, 4)

2) On a 1 to 5 scale, where 1 is "not aware" and 5 is "very knowledgeable". Please rate your current level of knowledge before participating in the SBR course in the following two areas:

1. Options available for Soybean Rust Management (4, 4)
2. Major efforts underway to develop integrated management approaches (4, 4)

3) Were your pre-workshop participation expectations met or exceeded? Both participants stated "Expectations were exceeded".

4) Other Comments? Both participants expressed how valuable participation in the workshop was to them professionally and the benefit they saw it playing in future endeavors and interactions with their soybean producing clientele, agribusiness, consultants and cooperative extension colleagues.




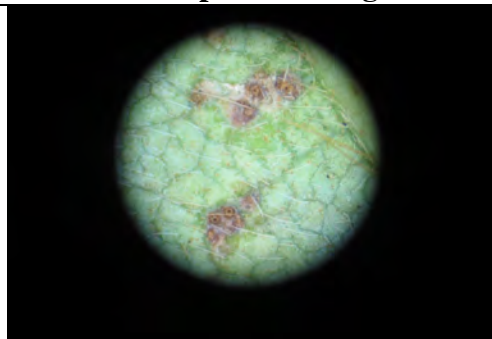
Their comments follow:

"This class was a very worthwhile experience. I feel confident that I can now accurately determine what SBR looks like both on kudzu and soybean should this disease reach NY. The combination of field and "under the scope" training was very effective. The speakers were excellent and interaction with other state extension educators was very valuable."

"The soybean rust short course was phenomenal! I guess having had 700 some people go through it, those guys really have it down pat to keeping it fun, informative, interactive, and in short enough sessions to keep my full focused attention! I went into the course knowing very little about soybean rust except that it can be quite devastating and we ought to have some heads up before it gets here because it will hit the southern states first. Now I am confident I can identify it so people don't get into a panic when it heads our way! Very neat how it penetrates the epidermis directly versus through the stomata. Got to see some soybean rust on kudzu in the field but there was no SBR on the soybeans in the field. We saw it on soybean leaves under the

scopes though..... I (look forward to) telling the field crop extension group about the trip. I can't believe more folks didn't take advantage of it!

A few photos of the SBR training are attached courtesy of Mike Stanyard

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| SBR Workshop – Class in the field | SBR Workshop – Checking kudzu for SBR |
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| SBR Workshop – SBR pustules on kudzu | SBR Pustules under magnification |

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